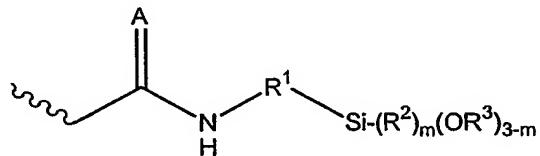


CLAIMS

What is claimed is:

1. A method for preparing a functionalized polymer, the method comprising:
5 contacting an anionically-polymerized living polymer with an isocyanato alkoxysilane or isothiocyanato alkoxysilane.
2. A vulcanizate prepared by:
10 vulcanizing a rubber formulation comprising at least one vulcanizable rubber and a filler, where the at least one vulcanizable rubber is a functionalized polymer that is formed by contacting an anionically-polymerized living polymer with an isocyanato alkoxysilane or isothiocyanato alkoxysilane.
3. A functionalized polymer that is defined by the formula



15

where $\sim\sim\sim$ is an anionically-polymerized polymer, A is oxygen or sulfur, R¹ is a divalent organic group, each R² and R³ is a monovalent organic group, and m is an integer from 0 to 2.

- 20 4. The method of claim 1, vulcanizate of claim 2, or functionalized polymer of claim 3, where the anionically-polymerized polymer is prepared from at least one monomer comprising 1,3-butadiene, isoprene, 1,3-pentadiene, 2,3-dimethyl-1,3-butadiene, 1,3-hexadiene, myrcene, styrene, α -methyl styrene, *p*-methylstyrene, and vinylnaphthalene.
- 25 5. The method of claim 1, vulcanizate of claim 2, or functionalized polymer of claim 3, where the anionically-polymerized polymer is a copolymer of styrene and 1,3-butadiene.

6. The method of claim 1, vulcanizate of claim 2, or functionalized polymer of claim 3, where the anionically-polymerized polymer is formed by using an initiator comprising at least one element from Group 1 or Group 2 of the Periodic Table.

5 7. The method of claim 1, vulcanizate of claim 2, or functionalized polymer of claim 3, where the anionically-polymerized polymer is formed by using an initiator, and where the anionically-polymerized polymer is contacted with from about 0.3 to about 1 equivalent of terminating agent per equivalent of initiator.

10 8. The method of claim 1, or vulcanizate of claim 2, where the isocyanato alkoxy silane compound or isothiocyanato alkoxy silane compound comprises gamma-isocyanatopropyl-triethoxysilane, gamma-isothiocyanatopropyl-triethoxysilane, gamma-isocyanatopropyl-trimethoxysilane, and gamma-isothiocyanatopropyl-trimethoxysilane.

15 9. The method of claim 1, or vulcanizate of claim 2, where the isocyanato alkoxy silane comprises gamma-isocyanatopropyl-trimethoxysilane.

10. The vulcanizate of claim 2, where the filler comprises carbon black, silica, or
20 a mixture thereof.

BLANK PAGE

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US2004/018285

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C08C19/44 C08L19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C08C C08L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/34658 A (MORITA KOICHI ; FUJIMAKI TATSUO (JP); HATTORI IWAKAZU (JP); JSR CORP () 17 May 2001 (2001-05-17)	2-5,8-10
Y	page 4, line 6 - line 30 page 7, line 24 - line 32 page 14, line 3 - line 23 example 37; table 6 claims 1-3,8	1,6,7
Y	EP 0 801 078 A (BRIDGESTONE CORP) 15 October 1997 (1997-10-15) page 3, line 50 - page 4, line 37 examples 1,2	1,6,7

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- °A° document defining the general state of the art which is not considered to be of particular relevance
- °E° earlier document but published on or after the international filing date
- °L° document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- °O° document referring to an oral disclosure, use, exhibition or other means
- °P° document published prior to the international filing date but later than the priority date claimed

- °T° later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- °X° document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- °Y° document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- °&° document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 September 2004	13/10/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Denis, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/018285

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0134658	A 17-05-2001	CA	2424815 A1	17-05-2001
		EP	1230273 A1	14-08-2002
		JP	2003514078 T	15-04-2003
		WO	0134658 A1	17-05-2001
EP 0801078	A 15-10-1997	US	5659056 A	19-08-1997
		CA	2201674 A1	10-10-1997
		DE	69710629 D1	04-04-2002
		DE	69710629 T2	12-09-2002
		EP	0801078 A1	15-10-1997
		ES	2171771 T3	16-09-2002
		JP	10036436 A	10-02-1998